

Identification of *Haplothrips* species from Malesia (Thysanoptera, Phlaeothripinae)

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Abstract

A key is provided to 13 species of *Haplothrips* recorded from Malesia, the tropical biogeographic region that extends from Peninsular Malaysia to New Guinea. Three new synonyms are established, and *H. alicae* **sp.n.** is described from Sarawak, Timor-Leste and Thailand. In contrast to recent treatments of *Haplothrips*, one of the most common members of the genus in Australia, *H. angustus* Hood is recognised as a **syn.n.** of *H. ganglebaueri* Schmutz that is widespread from Iran to Indonesia. Difficulties in distinguishing between three of the most common flower-living, Southeast Asian, species of this genus are discussed: *H. anceps* Hood from northern Australia, *H. chinensis* Priesner from Hong Kong, and *H. brevitubus* (Karny) from Japan.

Key words: new species, new synonyms, Australia, Southeast Asia, distributions

Introduction

Haplothrips is the third largest genus in the insect Order Thysanoptera, and currently comprises almost 250 species (ThripsWiki 2019). The genus is found throughout the world, but with remarkably few species in South America (Mound & Marullo 1996). The members of this genus are predominantly flower-living, with many associated with the flowers of Asteraceae and also Poaceae, although the flowers of many other families are visited and presumably exploited in some way. In addition, some of the species are known to be, or are suspected of being, predators on other small arthropods (Minaei & Mound 2008), and these are commonly beaten from dead branches. Unfortunately, there are very few biological studies on any species, and there are also very few identification keys that deal with more than a few species. For example, although the web site Fauna Europaea (2019) lists 80 *Haplothrips* species from Europe, the only modern identification system in the Palaearctic Region is to the 14 *Haplothrips* species recorded from Britain (Mound *et al.* 2018). There is a key to 24 *Haplothrips* species from Australia (Mound & Minaei 2007), to 21 *Haplothrips* species from Iran (Minaei & Mound 2008), and to nine *Haplothrips* species from Japan (Okajima 2006), but for tropical Asia the only modern key is to 17 species from India (Pitkin 1976). For Southeast Asia, the only identification system to *Haplothrips* species (Priesner 1933) is now of little more than archival interest, because many of the character states used are no longer considered valid, and there have been many nomenclatural changes over the past 80 years. The objective of the studies reported here was to re-examine the original specimens of the *Haplothrips* species from Southeast Asia, and to correlate those with recently collected series in order to prepare a provisional identification system on which future studies might be based.

Abbreviations. The pronotal setae are given below as: am—anteromarginals; aa—anteroangulars; ml—midlaterals; epim—epimerals; pa—posteroangulars.

Generic classification

The body form of species within the Haplothripini is remarkably uniform, and the generic classification continues to be less than satisfactory. Individual species that exhibit an unusual autapomorphy are commonly placed into

separate genera, such that 14 of the 34 genera that were listed by Mound and Minaei (2007) in this Tribe are monotypic. Members of this Tribe all have well-developed prosternal basantra, and the fore wings (when present) have a median constriction. Species that are now placed in the genus *Haplothrips* all have either one or two sense cones on antennal segment III, and four sense cones (rarely three) on segment IV. In contrast, *Haplothrips*-like species that have two sense cones on both of antennal segments III and IV are now placed in *Xylaplothrips*, and similar looking species with three sense cones on segment III and four on segment IV are now placed in *Mesandrothrips* (Mound & Tree 2019). Within the genus *Haplothrips* there is a further complication in that most species have fore wings with a group of duplicated cilia distally on the posterior margin. Species of *Haplothrips* that lack these fore wing duplicated cilia are referred to the subgenus *Trybomiella*, although not all of the 25 species listed in this subgenus seem to be closely related. Within the Haplothripini, two further genera, *Apterygothrips* with 40 species and *Karnyothrips* with 48 species, are very similar to *Haplothrips* in body structure. Species seem to have been allocated to these two genera in an almost arbitrary manner, and currently both are almost certainly polyphyletic. These genera are not considered further, as the included species need to be re-examined, and the genera freshly diagnosed, if they are to come to represent single evolutionary lineages.

Key to *Haplothrips* species from Malesia

1. Fore wing without duplicated cilia distally on posterior margin 2
- Fore wing with duplicated cilia distally on posterior margin 3
2. Pronotum with only epimeral setae larger than discal setae (Fig. 6) *timori*
- Pronotum with 5 pairs of major setae *robustus*
3. Antennal segment III with 2 sense cones 4
- Antennal segment III with 1 sense cone 8
4. Antennal segment IV with 3 sense cones 5
- Antennal segment IV with 4 sense cones 6
5. Fore tarsus with curved tooth at inner apex (Fig. 3); antennal segments IV–VI yellow at base (Fig. 3); all femora yellow *aliceae* **sp.n.**
- Fore tarsus with tooth minute or absent; antennal segments IV–VI uniformly brown; femora variously shaded brown (Fig. 18) *incognitus*
6. Mid and hind tibiae and tarsi clear yellow *bituberculatus*
- Mid and hind tibiae light to dark brown 7
7. Tergite IX S1 setae longer than tube; sense cones on antennal segment III equally large and stout (Fig. 17); fore wing sub-basal setae S3 weakly capitate *gowdeyi*
- Tergite IX S1 setae no more than 0.75 as long as tube; inner sense cone on antennal segment III smaller and thinner than outer; fore wing sub-basal setae S3 acute *tenuipennis*
8. Maxillary stylets close together, less than 0.25 of head width apart (Fig. 11) 9
- Maxillary stylets more than 0.3 of head width apart (Figs 9–10) 10
9. Antennal segments III–VI clear yellow; mid and hind tarsi as dark brown as tibiae; fore tarsus with tooth in both sexes; antennal segment III about 65 microns long, 2.5 times as long as wide *jordani*
- Antennal segments IV–VI light brown, III paler; mid and hind tarsi paler than tibiae; fore tarsal tooth absent or minute in both sexes; antennal segment III less than 50 microns long, 1.6 times as long as wide *imperatae*
10. Fore wing sub-basal setae S3 very long and finely pointed, at least as long as basal width of wing; fore tarsus of female with hook-like tooth at inner apex (Fig. 13); mid and hind tarsi as dark as tibiae 11
- Fore wing sub-basal setae S3 not so long; fore tarsal tooth of female not hook-like; mid and hind tarsi usually paler than tibiae, sometimes yellow 12
11. Fore wing uniformly grey; epimeral setae 95 microns, postocular setae 60 microns *fumipennis*
- Fore wing uniformly pale; epimeral and postocular setae no more than 40 microns long (Fig. 9) *certus*
12. Major pronotal setae including epimerals dark (Fig. 8); fore wing shaded base short, scarcely reaching sub-basal setae S1, setae S3 pointed; stylets retracted to po setae *anceps*
- Major pronotal setae including epimerals pale (Fig. 7); fore wing shaded base extending at least to sub-basal setae S2, setae S3 capitate; stylets wider apart and lower *ganglebaueri*

Haplothrips aliceae **sp.n.**

(Figs 1–5)

Female macroptera. Body almost bicoloured; head brown laterally but yellowish medially, pronotum yellowish with coxae darker, pterothorax and abdomen light brown to brown with tube darkest; legs almost clear yellow

with femora faintly shaded; antennal segment I brown, II brown with apex yellow, III yellow, IV–VI yellow but brown distally, VII–VIII brown; major setae and fore wing pale. Head longer than wide (Fig. 1), eyes slightly larger dorsally than ventrally, hind ocelli close to compound eyes; dorsal surface without sculpture medially, with weak transverse lines laterally; maxillary stylets retracted to postocular setae, one-third of head width apart, with distinct maxillary bridge; postocular setae weakly capitate, shorter than dorsal length of eyes; mouth cone short and rounded. Antennal segment VIII slender and constricted to base; IV–VI with basal stem (Fig. 3); III with 2 slender sense cones, IV with 3 of which the inner is stouter than the lateral two. Pronotum transverse, epimeral sutures complete, without sculpture lines except for weak median longitudinal ridge (Fig. 1); with 4 pairs of capitate major setae, anteromarginal setae minute. Fore tarsus inner margin produced into stout, distal, slightly curved tooth (Fig. 3). Prosternal sclerites well-developed, mesopresternum broadly boat-shaped (Fig. 4); metathoracic sterno-pleural sutures not developed. Mesonotal lateral setae capitate but small (Fig. 5). Metanotum reticulate, median major setae acute, with one pair of minor setae on anterior third (Fig. 2). Fore wing slender, weakly constricted medially, with 4 or 5 duplicated cilia; sub-basal setae capitate, apex of S3 weakly capitate (Fig. 5). Pelta longer than wide (Fig. 2); tergites II–VII each with 2 pairs of sigmoid wing-retaining setae, strongly developed on IV–VI; tergite IX major setae finely acute, longer than tube; tube shorter than head, anal setae not elongate; sternites with transverse row of about 8 short discal setae.

Measurements (holotype female in microns): Body length 1920. Head, length 200; width 135; po setae 45. Pronotum, length 125; width 200; major setae aa 30, ml 25, epim 60, pa 35. Fore wing length 700; sub-basal setae S1 30, S2 45, S3 75. Tergite III posteromarginal setae S1 80, S2 35. Tergite IX posteromarginal setae S1 150, S2 145. Tube length 125. Antennal segments III–VIII length 50, 55, 50, 45, 40, 35; sense cone on III 15.

Male macroptera. Very similar to female in colour, sculpture and chaetotaxy, fore tarsal tooth slightly larger; tergite IX setae S2 short and slightly stout.

Measurements (paratype male in microns): Body length 1550. Head length 175. Fore wing length 650. Tergite IX posteromarginal setae S1 120, S2 25. Tube length 115.

Comments. On antennal segment IV the inner sense cone is stouter than the two outer sense cones, suggesting the possibility that the presence of only three sense cones on this segment has resulted from the fusion of two on the inner apical margin, as occurs in some specimens of *H. bituberculatus*. The weakly bicoloured body and the relatively elongate head are particularly unusual conditions among species of this genus.

Specimens studied. Holotype female, **East Malaysia, Sarawak**, Tamu Abu, Heart of Borneo Expedition, from grass, 17.viii.2017 (Alice Wells 16), in ANIC.

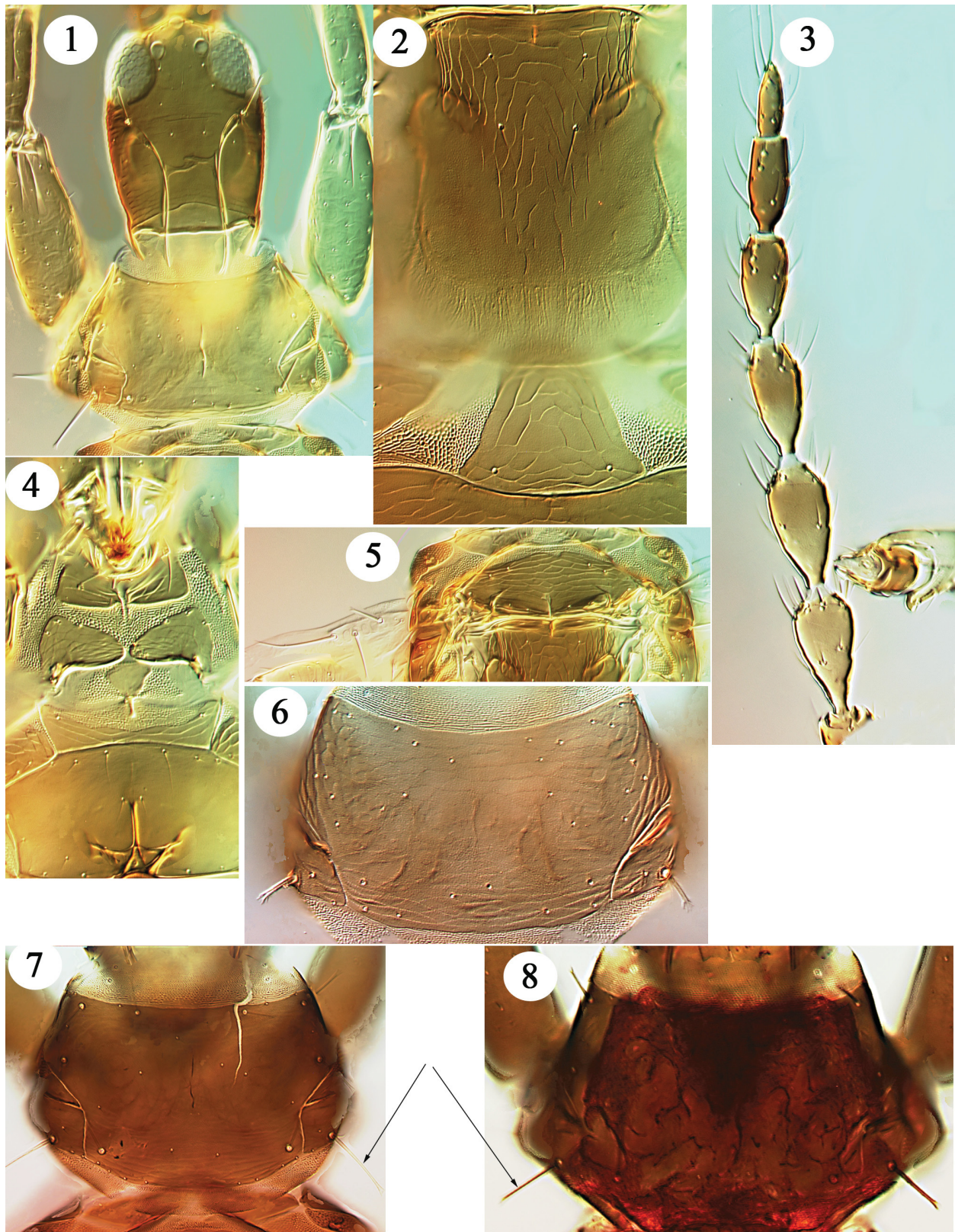
Paratypes: same locality as holotype, 1 female from Fabaceae pink flowers, 22.viii.2017. **Timor-Leste**, Railoka, 1 male from rice, 28.viii.2018 (Alice Wells 054). **Thailand**, 1 female taken in quarantine at Sydney, Australia, from asparagus, 20.xi.2002 (A. Hall).

Haplothrips anceps Hood

Haplothrips anceps Hood, 1918: 129.
(Figs 8, 15)

This species was described from Nelson [Gordonvale] near Cairns in northern Queensland, Australia. It is widespread in northern Australia, and specimens have been studied from northeastern Queensland north of Cairns and from Torres Straits Islands, also from Northern Territory around Darwin and the Coburg Peninsula, and from Western Australia between Broome and Kununurra. Many specimens have also been studied from Sarawak in East Malaysia, from Timor-Leste, Laos, and Thailand, as well as from southern China in Hunan and Guizhou Provinces; all of these specimens are available in the Australian National Insect Collection, Canberra. These specimens, of both sexes, all have dark pronotal setae, in contrast to specimens of the structurally similar species, *H. ganglebaueri*, that is common across much of Australia. The shaded area at the base of the fore wing in *H. anceps* is generally smaller than in *H. ganglebaueri*. Moreover, there is a fairly consistent difference in host associations, with *H. ganglebaueri* breeding in the flowers of Poaceae and Cyperaceae, but *H. anceps* breeding in the flowers of various dicotyledonous plants. A further name that needs to be considered when studying the *Haplothrips* of countries to the north of Australia is *H. chinensis* Priesner. This was described from Hong Kong, and Asian specimens identified as *H. chinensis* cannot at present, be distinguished satisfactorily from Australian specimens identified as *H. anceps*. This is not a simple case of synonymy, because Okajima (2006) indicated that the females of *H. chinensis* cannot be

distinguished from females of *H. brevitubus* (Karny), a species recorded from Japan and Korea. However, Okajima reported that the males of *H. chinensis* and *H. brevitubus* can be distinguished by a slight difference in the apex of the male aedeagus. The significance and validity of these three available names for thrips species that are often abundant in Asia requires further study.



FIGURES 1–8. *Haplothrips* species. *H. aliceae* (holotype) 1–5: (1) head & pronotum; (2) metanotum & pelta; (3) antenna; (4) prosternites; (5) mesonotum & wing base. Pronotum 6–8: (6) *H. timori* (holotype); (7) *H. ganglebaueri*; (8) *H. anceps*.

***Haplothrips bituberculatus* (Girault)**

Podothrips bituberculatus Girault, 1927: 2

Although stated to occur across the whole continent of Australia (Mound & Minaei 2007), very few specimens are available in the Australian National Insect Collection from south of Canberra. The species has been taken commonly across the northern half of Australia, but also on Norfolk Island and in Sandaun Province of Papua New Guinea. Both within and between samples, this species exhibits considerable variation. The hind tibiae are usually extensively yellow but with a variable extent and intensity of light brown shading medially. Antennal segment IV usually bears four sense cones, but on many specimens the inner pair fuse to produce a single large sense cone, and thus a total of only three on this segment. Both sexes vary in size, and large individuals have larger fore legs and fore tarsal tooth. However, only the largest of males have the characteristic pair of tubercles on the inner margin of the fore tibia, from which the species derives its name. Such males have a larger pronotum, with a more obvious longitudinal ridge medially. The specimens listed below from Timor-Leste are closely similar in structure and chaetotaxy to Australian specimens, but the available samples included no large individuals. The mid and hind tibiae of these specimens are all clear yellow, and the fore tarsal tooth is very small in both sexes. The significance of these variants cannot be assessed without more extensive collecting.

Specimens studied from Timor-Leste, mainly from dead branches: Aileu, 1 male, 22.viii.2018; Fatu Kero, 3 females 7 males, 27.viii.2018; Gleno, 6 females, 2 males, 28.iii.2018 (Alice Wells & LAM).

***Haplothrips certus* Priesner**

Haplothrips certus Priesner, 1929: 194

(Figs 9, 13–14)

Described from the Mentawai Islands of Sumatra, Indonesia, type specimens of this species were examined at the Senckenberg Museum, Frankfurt in July 2018 and compared with the specimens from Sarawak listed below. The species is a typical member of the genus, with maxillary stylets wide apart and retracted to the postocular setae, and the mesopresternum broadly boat-shaped. But the pronotal major setae are relatively short and capitate, and the fore wing sub-basal seta S3 is exceptionally long and finely acute. The female has a short curved tooth at the inner apex of the fore tarsus, but the male has a more broadly based lateral tooth. The fustis in abdominal segment IX of females is unusually elongate, and the mid and hind tarsi are dark brown.

Measurements (female from Sarawak in microns). Body length 2150. Head, length 185; postocular setae 30. Pronotum, length 160; width 240; major setae am 28, aa 25, ml 25, epim 40, pa 35. Fore wing sub-basal setae S1 25, S2 25, S3 100; with 8 duplicated cilia. Tergite IX setae S1 60, S2 60. Tube length 110.

Specimens studied. East Malaysia, Sarawak, Tamu Abu, Heart of Borneo expedition, collected by Ng Foo Yong and Alice Wells: 2 females 2 males from pink Fabaceae flowers, 22.viii.2017; 2 females 1 male from roadside weeds, 14.viii.2017; 4 females 1 male from grass flowers. 17.viii.2017.

***Haplothrips fumipennis* Priesner**

Haplothrips fumipennis Priesner, 1933: 347

The female labelled “Type” has been examined, and this was collected from a leaf gall on *Polygonum chinense* at Tjibodas, Java, 2.vii.1920. It is a larger insect than *H. certus*, but it shares several character states with that species, including the position of the maxillary stylets in the head, the hooked fore tarsal tooth, the dark hind tarsi, and long slender sub-basal seta S3 on the fore wing. However, the major pronotal setae are much longer with apices less obviously capitate than in *certus*.

Measurements. Body length 1950. Head, length 220; postocular setae 60. Pronotum, length 160; width 270; major setae am 40, aa 50, ml 60, epim 90, pa 80. Fore wing sub-basal setae S1 60, S2 70, S3 100; with 10 duplicated cilia. Tergite IX setae S1 95, S2 90. Tube length 170.

***Haplothrips ganglebaueri* Schmutz**

Haplothrips ganglebaueri Schmutz, 1913:1034

Haplothrips angustus Hood, 1919: 77. **Syn.n.**

Haplothrips themedae Priesner, 1933: 356. **Syn.n.**

(Fig. 16)

Described originally from Sri Lanka, with synonyms described from Sudan, India and Java (ThripsWiki 2019), this species is also recorded from Iran (Minaei & Mound 2008), the southern half of Japan (Okajima 2006), and is here newly recorded from Australia as a result of the above synonymy. One paratype of *H. themedae* has been studied, from *Themeda gigantea*, Sumatra, 4.vi.1922 (Fulmek). Despite the statement in the original description concerning a large fore tarsal tooth in *H. themedae*, no such tooth is visible on this paratype. The specimen has the maxillary stylets rather more deeply retracted than is usual in *H. ganglebaueri* but cannot otherwise be distinguished. The species described by Hood as *H. angustus* from New South Wales, Australia, has previously been considered a synonym of *H. anceps* (Mound & Minaei 2007). However, these two are here distinguished on the colour of the pronotal setae, the position of the maxillary stylets, and the shape of the apex of sub-basal seta S3 on the fore wing. Despite the accepted synonymies, genetic differences presumably exist between populations across this vast area, from Iran to eastern Australia. For example, females identified as *H. ganglebaueri* from Iran and India usually have no visible fore tarsal tooth, whereas females from Malesia, Japan and Australia have a minute or very small tooth. Moreover, the fore wing sub-basal setae S3 varies in length, and in the breadth of its apical expansion. Within Australia, the species has been found mainly in the northern, warmer areas, and the few available specimens from South Australia and Tasmania have the antennae distinctly darker than usual. No significant differences have been found in the shape of the aedeagus between males from different parts of the entire range. This species is particularly associated with species of Cyperaceae and Poaceae, although adults are often taken from other plants. As discussed above, *H. ganglebaueri* is very similar in structure to *H. anceps* and related species from Southeast Asia, but has the pronotal major setae pale.

***Haplothrips gowdeyi* (Franklin)**

Anthothrips gowdeyi Franklin, 1908: 724

(Fig. 17)

Males of this species have been found mainly in Africa (Mound & Marullo 1996), and the species presumably originated on that continent. It is particularly common in countries around the Caribbean and is widespread in tropical countries around the world. Eight synonyms are recognised (ThripsWiki 2019), but there is little information available concerning its biology, although adults with larvae have been taken in the flowers of various Asteraceae as well as Poaceae (Mound & Wells 2015). Among the species of *Haplothrips* with two sense cones on the third antennal segment it is usually readily distinguished by the small, almost spherical segment III (Fig. 17), the yellow colour and large size of segment IV, and the long, pointed setae on tergite IX that extend to the apex of the tube.

***Haplothrips imperatae* Priesner**

Haplothrips imperatae Priesner, 1933: 354

Described from both sexes collected on *Imperata exaltata*, at Medan, Sumatra, syntypes from this series were studied at the Senckenberg Museum in July 2018. The species is one of the members of *Haplothrips* in which the stylets are deeply retracted into the head and are very close together medially. The available specimens are not good slide mounts, but this species appears to share several character states with *H. jordani*, from which it is distinguished in the key above.

***Haplothrips incognitus* Priesner**

Haplothrips incognitus Priesner, 1933: 349

(Fig. 18)

This species remains based on a single female from Java, Buitenzorg, 2.v.1923. Studied at the Senckenberg Museum, Frankfurt, in 2018, it is a rather dark individual, with antennal segments IV–VIII dark brown, and all femora extensively brown (Fig. 18). The sense cone formula is remarkable, two on III but three on IV, and among described *Haplothrips* species this is shared with only four other species. These are *H. alicae* described above, also *H. fici* Mound & Minaei and *H. lyndi* Mound & Minaei from northern Australia, and *H. williamsi* Moulton from Hawaii. *H. williamsi* remains known only from the original eight specimens taken on Hawaii in 1929, and was described as having “legs yellow” and antennal segments “one and four to eight brown, and two and three light brownish yellow”. Mound and Matsunaga (2017) studied a paratype of *H. williamsi* from the Moulton collection, San Francisco, and stated “legs almost clear yellow” and illustrated this paratype as having antennal segment III yellow in contrast to uniformly brown segments IV–VIII. Both *H. incognitus* and *H. williamsi* have antennal segments VII and VIII closely joined, whereas in the other three species listed above antennal segment VIII is more elongate and narrowed to the base. *H. incognitus* is most similar to *H. lyndi* in colour and structure, but these two will need to be compared using fresh undamaged specimens.

***Haplothrips jordani* (Bagnall)**

Zygothrips jordani Bagnall, 1909: 530

(Fig. 11)

Although this species was said to be described from many specimens of both sexes, taken on Nias, Sumatra, only one male syntype was found to survive in the collections at the Natural History Museum, London (Mound 1968). However, one female with the original data is available in the collections of the Senckenberg Museum, Frankfurt (Fig. 11). As in *H. imperatae*, the maxillary stylets are unusually elongate, retracted to just anterior to the postocular setae and close together medially in the head. In contrast to *H. imperatae*, the pronotal major setae are shorter, and the antennal segments paler with segment III distinctly longer. The pronotal setae are light brown, the mid and hind tarsi are dark brown, and the fore tarsi of the female bear a slightly hooked tooth at the inner apex.

Measurements (syntype female). Body length 2300. Head, length 270; width 200; maxillary stylet separation 10; postocular setae 55. Pronotum, length 200; width 300; major setae am 25, aa 30, ml 35, epim 50, pa 45. Fore wing sub-basal setae S1 35, S2 50, S3 70; with 9 duplicated cilia. Tergite IX setae S1 ?, S2 85. Tube length 150.

***Haplothrips robustus* Bagnall**

Haplothrips robustus Bagnall, 1918: 209.

Until recently this species was known only from Australia, where females are widespread across the continent (Mound & Minaei 2007). However, *H. sesuvii* Priesner from Java was recently synonymised with *H. robustus*, and the species was also recorded from Oahu and the New Hebrides (Mound & Matsunaga 2017). No male of *H. robustus* has ever been recorded, and the species may have been dispersed out of Africa, because it is similar in structure to the African species *H. claripennis* Priesner. It is a typical member of the subgenus *Trybomiella*, with broad fore wings that are constricted medially and no duplicated cilia distally on the posterior margin.

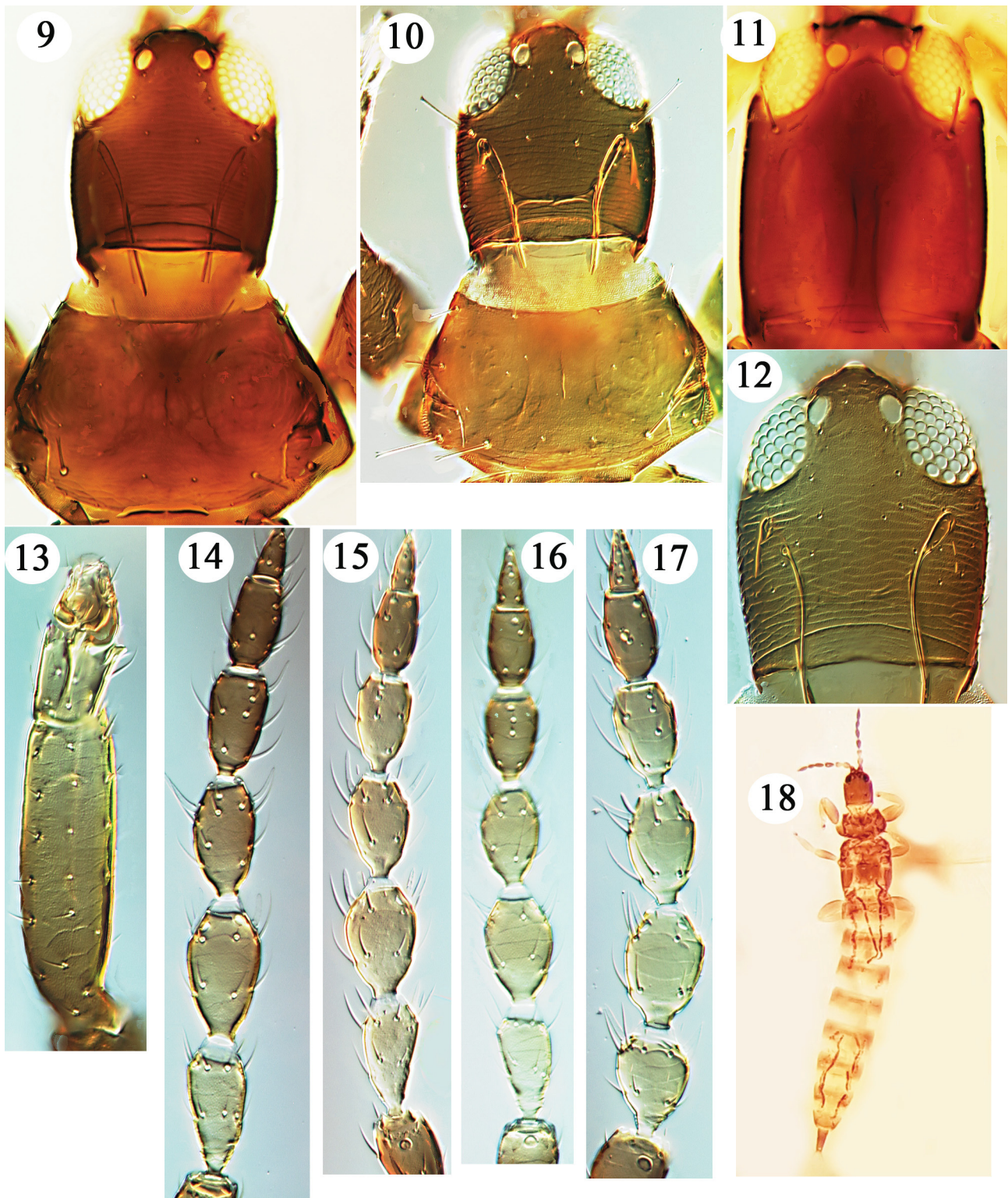
***Haplothrips tenuipennis* Bagnall**

Haplothrips tenuipennis Bagnall, 1918: 210

Haplothrips ceylonicus var. *mangiferae* Priesner, 1933: 359 **syn.n.**

Syntypes of this species from northern India have been studied and compared to a female paratype of *H. ceylonicus* var. *mangiferae* from Java, Semarang, in *Mangifera* flowers, 25.viii.1912. Females of these two species cannot be distinguished from each other, and this synonymy was first established by Mound (1968). However, Bhatti (1995: 105) rejected this synonymy with the statement “*mangiferae* is readily distinguishable from that species [= *H. tenuipennis*] by the shape of pseudovirga”. Unfortunately, no published illustrations of the male genitalia of either species seems to have been published, and it has not proved possible to confirm Bhatti’s opinion. Based on females, the name *H. mangiferae* is therefore here returned to synonymy. As with so many other species described from the

Indian subcontinent, the identity of *H. ceylonicus* Schmutz from Sri Lanka remains unclear and will require further study. Moreover, a further species, *H. nipponicus* Okajima, that is said to be common in Japan (Okajima 2006), is not distinguishable from *H. tenuipennis* based on character states given in its description. In general appearance, *H. tenuipennis* is similar to members of the *H. anceps* group of species with which it shares the dark pronotal major setae, but it is distinguished by the presence of a small slender sense cone on the inner margin of antennal segment III that is not developed in either of the other two species.



FIGURES 9–18. *Haplothrips* species. (9) *H. certus* head & pronotum; (10) *H. anceps* head & pronotum; (11) *H. jordani* head; (12) *H. timori* head; (13) *H. certus* fore tarsus. Antenna 14–17: (14) *H. certus*; (15) *H. anceps*; (16) *H. ganglebaueri*; (17) *H. gowdeyi*. (18) *H. incognitus* (type).

***Haplothrips timori* Mound & Minaei**

Haplothrips timori Mound & Minaei, 2007: 2962

(Figs 6, 12)

This is an unusual species, of which very few specimens have ever been found. Described from a single male taken near Darwin in northern Australia, seven specimens are listed below that share most character states with this holotype. Amongst these specimens the setae on tergite IX are curiously variable. The holotype male has setae S1 and S3 capitate, with S2 pointed on one side but blunt on the other. However, the three males from Badu Is. have setae S1 and S2 more or less capitate but S3 long and acute, whereas the female collected with them has all three pairs of setae capitate. The two females from Timor-Leste have setae S1 capitate, S2 pointed and unusually short (10 microns), and S3 pointed but about as long as S1. The single female from South Australia is probably not conspecific, because the setae on tergite IX, also the pronotal epimeral setae, are very short and broadly capitate.

Specimens studied. **Torres Strait Islands**, Badu Is., 3 males, 1 female from *Coriandrum*, 18.xi.2009. **South Australia**, Adelaide, Mt George, 1 female from dead leaves, 19.xii.2005. **Timor-Leste**, Dili, 1 female from *Euphorbia hirta*, 20.ii.2005, 1 female from grasses, 21.viii.2018.

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